Ship Maintenance Organization

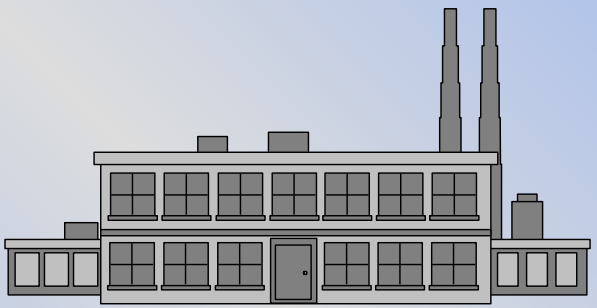
FROM KNOWLEDGE

"Prompt and Sustained Combat Operations at Sea on a Continuing Basis"

Chief of Naval Operation

EFFECTIVENESS

Aboard Ship



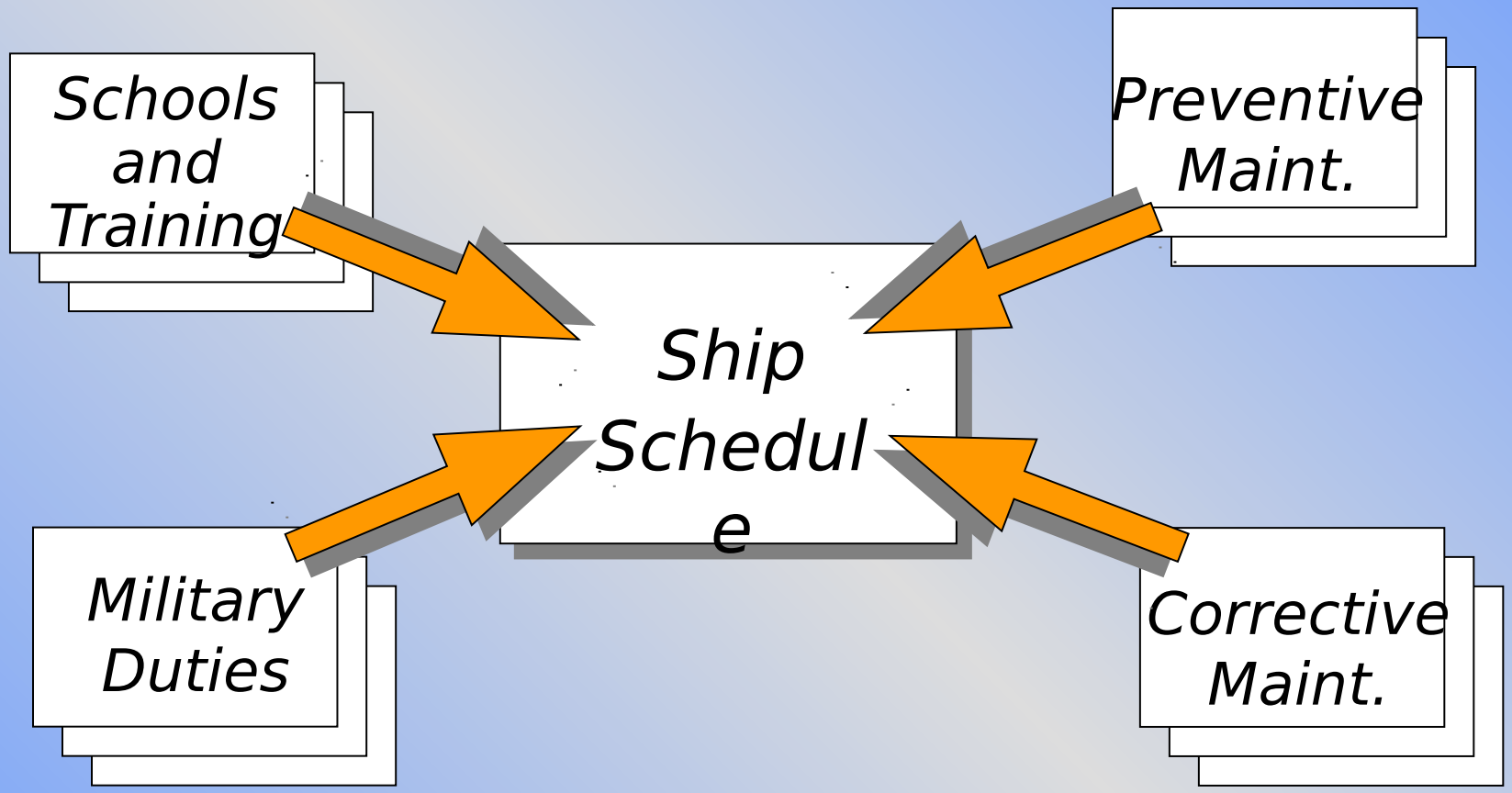
Ashore

Part 2 of 4

Managing Work

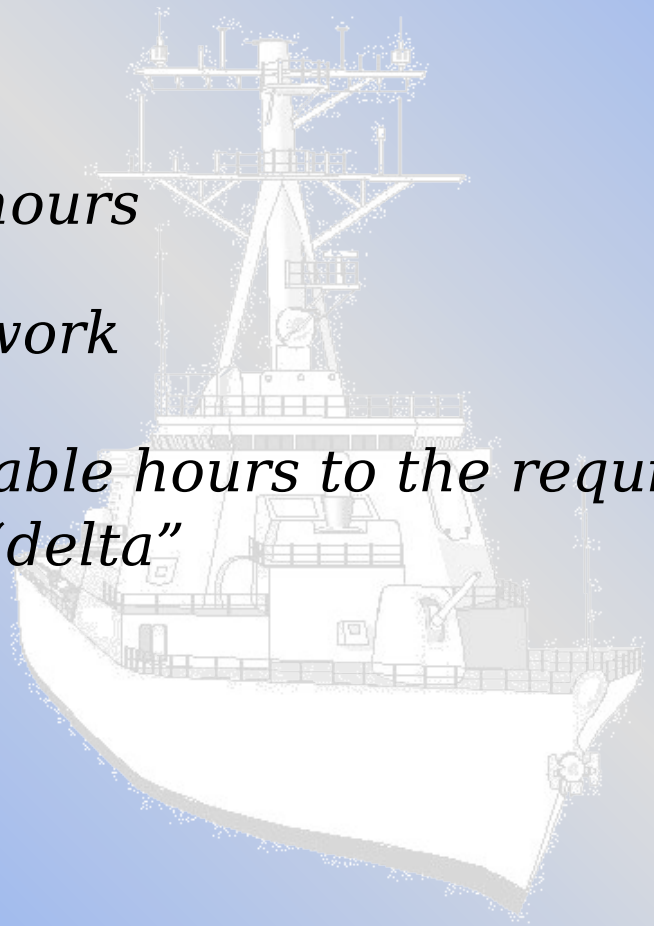
- *Two key elements*
- *Equally important but each very different*
  - *Work Load Planning*
  - *Work Action Planning*

Work Load Planning



You need to have a strategic plan and the ability to track your process accomplishing it

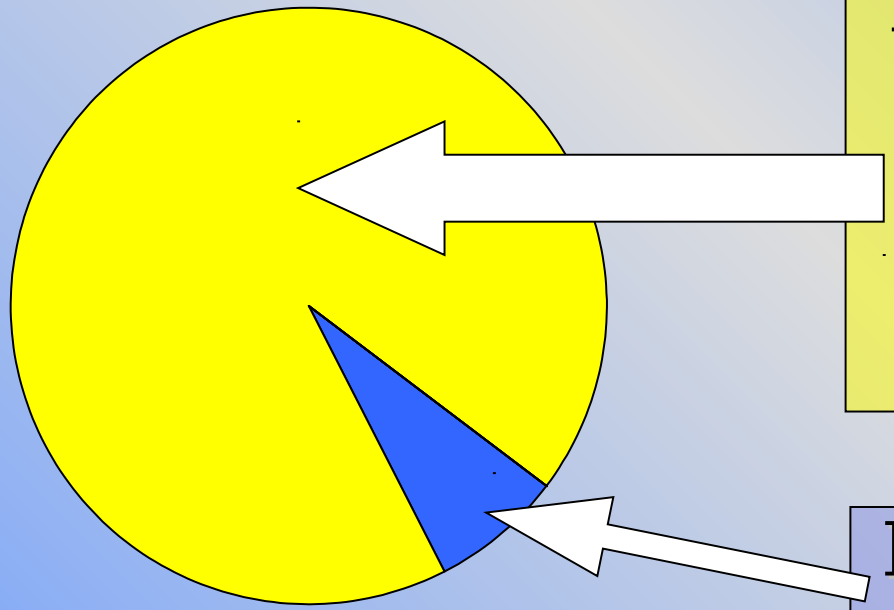
Man Hours for Ship's Force Work



- *Determining the hours*
  - *Factors affecting*
- *Determining the work*
  - *<u>All</u> of it*
- *Relating the available hours to the required work*
- *Dealing with the "delta"*

Man Hours for Ship's Force Work

Underway



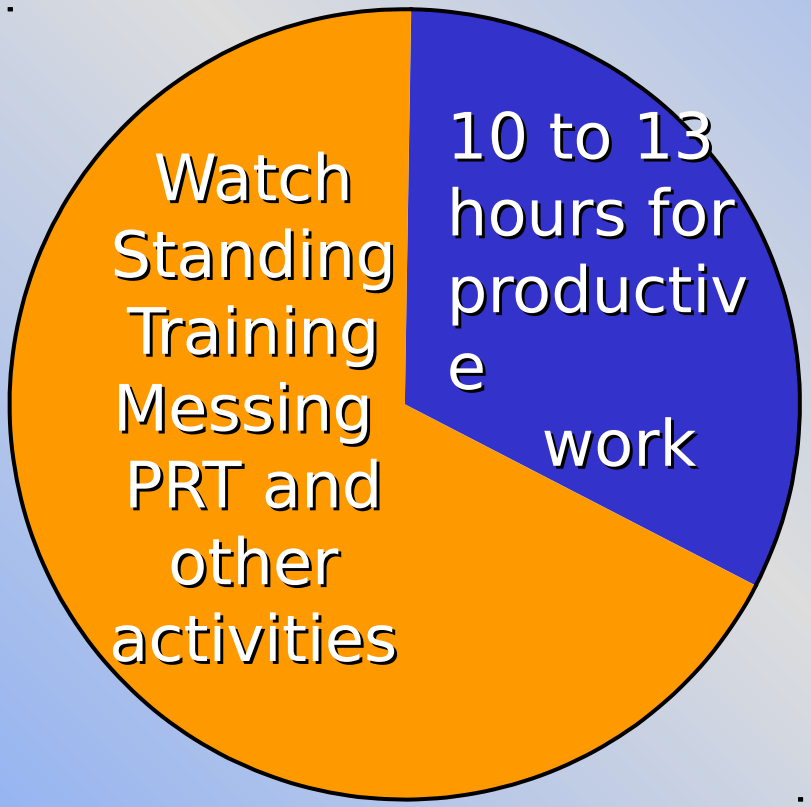
Watch Standing, Training, Messing, Sleep, and other activities

Productive Work 12 hours

168 Available Hours per week

Man Hours for Ship's Force Work

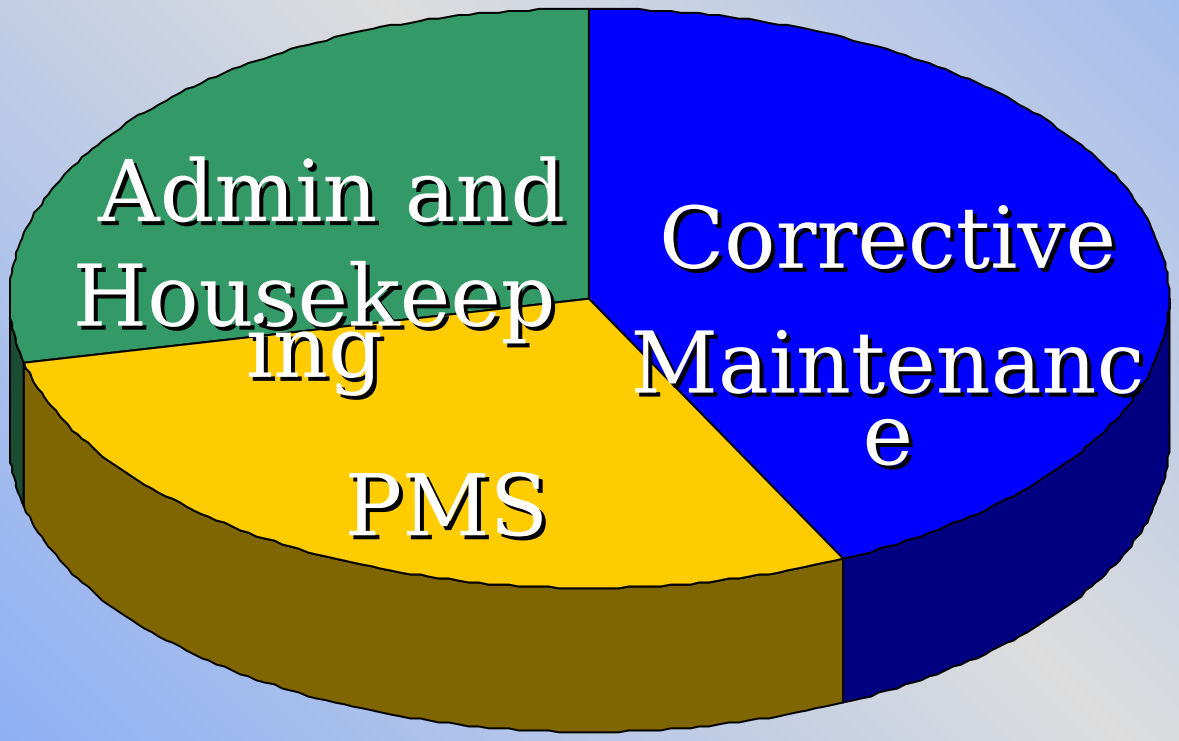
In Port



40 Hour workweek

Man Hours for Ship's Force Work

12 Hours



Productive Work

Available Ship's Force Man Hours

Detailed Explanation Go To S/F Man Hours Topic

DDG and LSD Example

300 Sailors Available to work
X 8 Hours Per Day
2400 Hours Per Day
X 9 Weeks Per Availability
21600 MH Available to work
X $50 Hour is work done by other than S/F
$ 1,080,000 worth of work
HOW MUCH CAN S/F ACCOMPLISH?

Work Action Planning

- *Determine Project Scope*
- *Identify Resource Requirements*
- *Develop Work Seque*
- *Identify Tes*
- *Prepare Man Po* *Estimate*

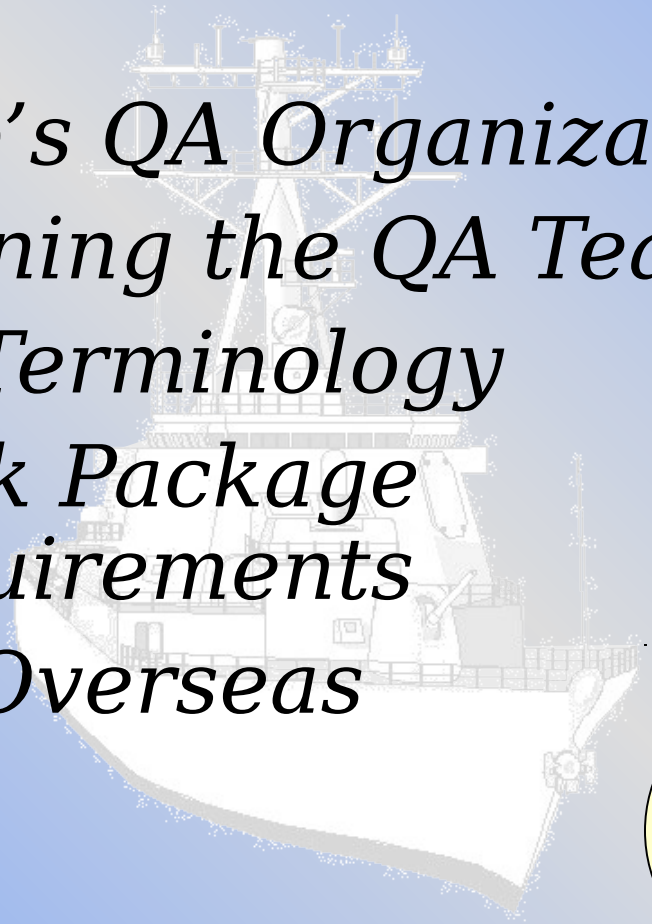
This is the process followed to make FWPs per JFMM

Ship Maintenance Organization

Quality Maintenance

Quality Maintenance

- *Ship's QA Organization*
- *Training the QA Team*
- *QA Terminology*
- *Work Package Requirements*
- *QA Overseas*



JFMM
Rev A
Vol V

Quality Maintenance

- *Ship's QA Organization*
  - *Commanding Officer*
  - *Executive Officer – monitor QAO*
  - *QA Officer (QAO) – CO designate in writing*
  - *QA Supervisor (QAS)*
  - *QA Inspector (QAI)*
  - *Controlled Material Petty Officer (CMPO)*

Details in Student Guide & JFMM V-I-1

Quality Maintenance

- Training
  - School House Training
    - QA Officer Course
      - QA Officer should attend
      - QA Supervisor may attend
      - Some FMAs are certified to instruct QAO Course
    - QA Inspector Training – no formal course
  - Onboard Training
    - PQS – QAS, QAI, CMPO, WCS, Craftsman
    - Written and oral exams required for
      - QAS, QAI, CMPO

Quality Maintenance Terminology

- *Quality Control*
  - *ACTIONS taken to obtain desired results*
- *Quality Assurance*
  - *PROCEDURES designed to ensure compliance with standards*

Quality Maintenance Terminology

- *Material Control - Control of material used in a maintenance task throughout its manufacture, procurement, receipt, and installation*
  - *Manufacturing certifications*
  - *Record of issue and handling*
  - *Stowage requirements*
  - *Handling during work*

Quality Maintenance Terminology

- *Controlled Work*

  Work Performed on Specified Critical Shipboard Systems

  - *Level 1 Systems*
  - *Weight Handling Systems* ← *All ships*
  - *Special Test Requirements*
  - *Nuclear/0_2N_2/SUBSAFE*

Quality Maintenance
Basic Maintenance Principles

- *Worker must*
  - *Have process*
  - *Be trained*
  - *Have proper technical direction*
  - *Have proper material*
- *Must have appropriate testing for essential & critical systems*

Fundamental rule: Technical specifications must be met at all times

Quality Maintenance Terminology

Technical Work Documents -TWD

- Maintenance Procedure -MP
- Formal Work Package - FWP
- Controlled Work Package - CWP

Work Procedures

Maintenance Procedures - Existing Written Procedure to Provide Clear Method to Accomplish Work

- *PMS*
- *Technical Manuals*
- *Technical Repair Standards*
- *Shipyard Process Instructions*
- *Ship Alt Instructions*
- *Steam & Electric Plant Man*
- *Shipyard Task Instructions*
- *NAVSEA Drawings*

Work Procedures

- *Formal Work Package*
  - *Written Procedures to Provide Clear Method to Accomplish Work*
  - *Coordinates in single document*
    - *Material – Test & Inspection*
    - *Initial Conditions – System Restoration*
    - *Maintenance Procedure*
  - *Required for personnel & equipment safety, system operating restrictions, cost impacts*
  - *Complexity of FWP Varies with Task*
  - *Ship/Department Hold Master File*
  - *Only Keep QA Sheet*

Work Procedures

- *Controlled Work Package (JFMM, Vol V, Ch 2, para 2.2.4)*
  - *Required for*
    - *Level 1*
    - *Weight Handling Systems*
    - *Special Test Requirements*
    - *Nuclear/O2N2/SUBSAFE*
  - *Record of Process and Materials*
  - *Objective Quality Evidence*

Departure From Specification

- *JFMM Vol V Part I Chap 8 Explains Process*
- *Types*
  - *Major – departures that affect performance, reliability, maintainability, design parameters, health, safety, etc.*
  - *Minor – departures that are not major*
- *Approval*
  - *Temporary – requires work candidate in CSMP for permanent repair or corrective action*
  - *Permanent – requires no additional repair or action*
- *Testing & Evaluating New Technology*
  - *Prototype Engineering Solutions*

Work Control

Formal Work Package

or

Controlled Work Package

MP's **+** **AUTHORIZATION** **=** **WORK**

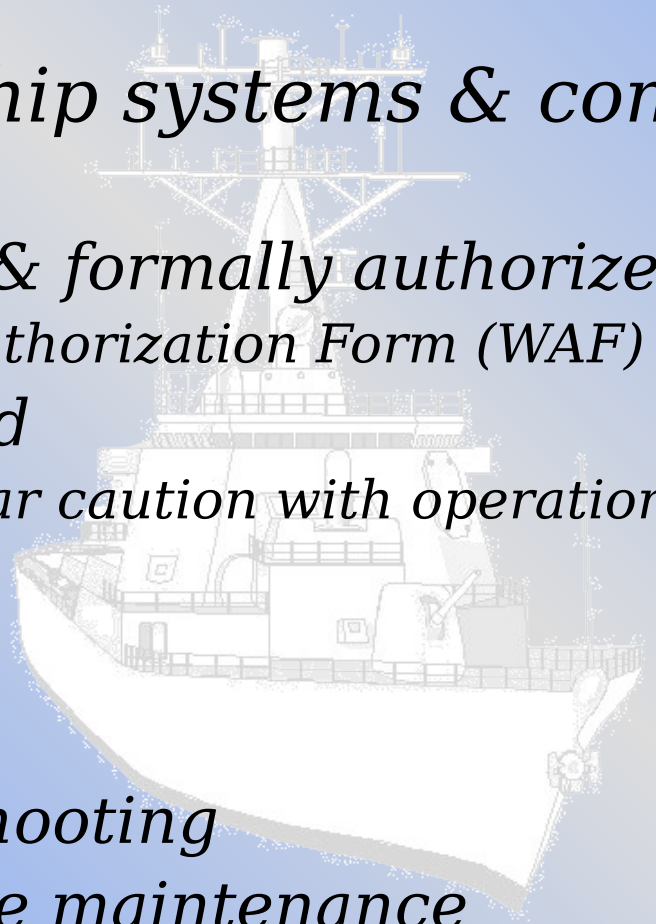
CWP REQUIRES OBJECTIVE QUALITY EVIDENCE

Elements of Work Control

- *Training*
- *Watch/Duty Officer involvement & oversight*
  - *Isolation*
  - *Plant/system condition*
- *Coordination*
- *Supervision*
- *Proper procedure*
  - *Completion requirements*
  - *Testing*
- *System restoration*

Work Authorization & Control
(JFMM, Vol IV, Part I, Chap 21)

- *Work on ship systems & components must be*
  - *Properly & formally authorized*
    - *Work Authorization Form (WAF) is the means*
  - *Controlled*
    - *Particular caution with operationally interrelated systems*
- *Work*
  - *PMS*
  - *Troubleshooting*
  - *Corrective maintenance*
    - *Includes removal of components for off-ship repair*
  - *Alterations*



Administration of Work Control

- *Applicability of procedures*
  - *Maintenance performed by*
    - *NavShipYds and their subcontractors*
    - *Other industrial repair activities as specified by MOA*
    - *Ship's force (cognizant Dep't Head determines need for WAF)*
- *Memorandum of Agreement*
  - *Agreement between industrial activity & ship's force*
  - *Required for*
    - *CNO availabilities*
      - *JFMM Vol II, Chap 3 (para 3.3.5)*
    - *All TYCOM maintenance availabilities assigned to industrial activities*
      - *JFMM Vol II, Chap 4 (para 4.11)*

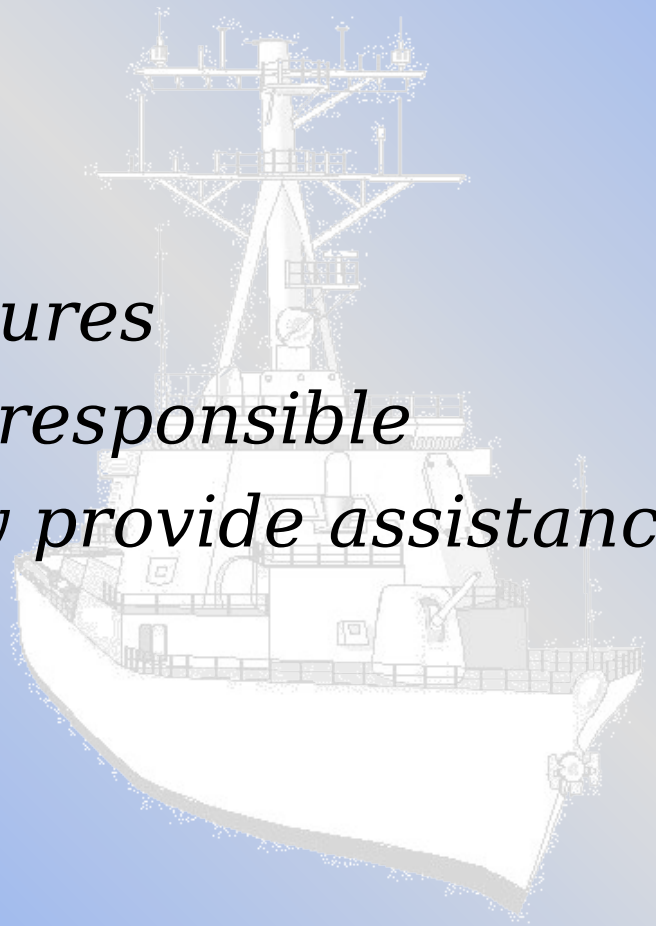
Administration of Work Control

- *Work Authorization Log (WAL)*
  - *Maintained at same location as Tagout Log(s)*
  - *Administered by same people*
    - *Exception: when centralized work control invoked per MOA*
- *Work Authorization Form (WAF)*
  - *Prepared by activity doing the work*
  - *Retained in WAL*
    - *Copy maintained with Technical Work Document (TWD)*
  - *TWD Record Sheet may also be needed*

Work Control Related Issues

- *Lead Maintenance Activity*
  - *Applies during scheduled maintenance periods*
    - *CNO/PRAV*
    - *RAV I, II*
    - *FMAV*
  - *Performs Maintenance Coordinator duties*
- *Maintenance Coordinator*
  - *CNO/PRAV: NavShipYd or SUPSHIP*
  - *Other planned maintenance periods: LMA*
  - *Other (emergent RAV, TAV, FMAV): RSG*

Quality Maintenance Overseas



- *Same procedures*
- *Ship's Force responsible*
- *SRU Det may provide assistance if available*

Command Level

Next Topic
Ship Maintenance Organization
part 3